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## HABITS OF THE WHIMBREL (*NUMENIUS PHÆOPUS*).

By J. A. HARVIE-BROWN.

WHEN visiting many of the islands of the Shetland group in 1890, I had opportunities of observing the Whimbrel at its nesting haunts. On July 1st in that year I witnessed a phase of flight which I have no recollection of seeing described before.\* As that day's experiences provided me with some matters of interest, in the hope that it may interest others I may perhaps be permitted to speak at some length of them.

In a large circular hollow a pair of Whimbrels were evidently nesting. Supposing the nest—in this case it was the young, recently hatched—be anywhere situate on the great flat, central portion of this saucer, which is about half a mile in diameter before the land rises gradually to the circumference—the moment the sky-line shows the figure of a man breaking its continuity, it may be considered certain that the birds have instantly realized danger, and that the female is off the nest, or running from her young, doubtless after uttering a low note of warning. When a nearer approach is made the cock springs into the air, and, with loud warning cries, comes straight towards the intruder on their solitudes. Then he circles round, continually crying, but occasionally pitching on a ridge or hummock. As the human intruder approaches still nearer, then the hen will be

\* Unless, indeed, Mr. E. Selous says aught regarding it in his 'Bird Watching in Shetland,' which I do not have beside me to refer to.

seen to spring and fly *away from you* some two hundred or three hundred yards off. She, too, circles around, and both birds float high in air, and alight at various points north, east, south, or west in the hollow, or on the surrounding slopes. The floating flight, with slightly down-curved wings, head gracefully poised and turning from side to side, is certainly well worthy of admiration; but never did I observe that they exercised that alternate soaring upwards with heavy flappings of the wings in silence, and the dipping descent, accompanied by the tremulous, weird cry so characteristic of their bigger brother, the Curlew, when at peace with all surroundings. These phases of flight of the Whimbrels are counterparts of the festive flights of the Grey and Golden Plovers we have described elsewhere ('Ibis,' 1876).

When both birds are on the move, and if the eggs be expected, it is of course desirable, after identifying the hen by her actions, never to lose sight of her. But it should be remembered that after the young are hatched off the parent birds reverse or exchange their habits at the nesting-place, as our experiences have proved in the case of Grey Plovers and other species, and as proved by dissection of such birds as are shot for identification purposes. Indeed, those peculiarities which are found applicable to the one sex before hatching apply to the other sex after the young are freed from the shells. How far the male Whimbrel assists in incubation I am not aware, but it is well known that the male birds of other species do so, often to quite a large extent, as, for instance, Red-necked Phalaropes, Black Guillemots (male shot with the hatching-spot on the belly, and also taken by hand on the eggs), and many others. This being the case, the difficulties attendant upon watching birds of species where little or no difference exists in plumage between the sexes become accentuated.

When the eggs are not yet hatched off, and the female is incubating, the following are some of the more noticeable actions when *both* birds are off the nest: The hen usually alights in a depression, or behind a hummock or ridge—even at times in a deep peat-hag—and then, running rapidly, head down if necessary for concealment, pops up some distance off, and remains perfectly still and silent. The male, on the other hand,



alights more prominently, *on* the ridge, as if courting observation. But—and note the fact—both birds at times exercise the reverse actions. Then it becomes still more difficult to locate the nest or eggs or partly freed young. As ascertained, the hen or incubating parent may run from the nest—or young, if hatched off—quite a hundred yards in some instances, before rising, and the rise off the ground often takes place when the human figure has advanced some distance from the sky-line, and some little time after the first loud warning notes from the bird acting sentry. It may, or may not be, that the young are secreted prior to the first loud warning-note of the sentry. That may, and probably does, depend upon the relative positions of the two birds, &c.

In the great circular hollow I treat of, there is scarcely a place of concealment or cover enough to conceal a man either during approach down its long sloping sides, or anywhere in an upright pose, and especially is this the characteristic of these Whimbrel-haunted saucer-like depressions of the Shetland Isles generally frequented by the species. So long as the intruder shows himself boldly and walks about, both birds are *comparatively* silent (both birds can see!), but when he lies down both birds are at first full of challenge and alarm. (My clothes were of a bad colour for this sort of work—blue serge—and may well have added to my unsuccesses.)

In the close neighbourhood of where I believed now the young to be—and as I afterwards knew them to be—I dropped into a natural hollow or dry “swallow”-hole. My horizon was now from fifteen to twenty feet only, and, on the other hand, I could not be seen by the birds except from the sky above. Around the rim was a thick growth of green and long grass. I thought to tire out the (*?incubating*) bird—as had been done before with other species—spring up and surprise her (or him) off the eggs. But I soon saw that was futile. The male bird came over me at intervals, saying: “I see you! I see you! Ha, ha!” &c. A Lesser Black-backed Gull came over, and from the bullying he got till he passed the charmed circle, I feel sure I was very near the young! I gave in, and walked away a good quarter of a mile. I looked back, and saw one bird floating in the air and *tumbling*, as if in gladness. I dropped into a handy

peat-hag, and, getting my eye on the other bird on the ground, I watched with my binoculars. At last, as the parent crossed a bare patch of ground *close to* my former place of concealment, I saw two and then another young bird following her. I walked back rapidly. The birds behaved as before, and I again took up my position—the young had concealed themselves. The other parent bird had risen quite one hundred and fifty yards off from where the young were.

And now comes the most interesting part of the observations I made on this occasion. On the first occasion when I hid in this hollow I had not thought it necessary to conceal myself from above. This time I cut and pulled over me the long grass, and lay full length.

The male bird came *some little time after*, and began to circle and float round with the graceful poise of the head already described, but, as I judged, with less carefulness in surveying the ground (I think the young had been removed further away?). And now, as he floated, circling round, suddenly whilst high in air he turned a complete somersault sideways, and descended head first, with a strange *corkscrew*—or rather, let me describe it, zigzag—phase of motion (it could scarcely be called flight). When close to the earth he recovered his normal position, and either skimmed away horizontally or momentarily alighted. This I had observed before at a distance, but too far off for me to satisfactorily note its peculiarities. Now I had the bird close to my place of observation, and I believe I was in a *greater measure concealed from above*. On the second repetition of this curious antic, the bird not being more than thirty yards from the hollow where I was lying, I clearly and distinctly saw it deliberately *fold the left wing to its side* as it turned in the air just before the descent was performed, and the wing was retained in that strange position during the whole time occupied in the descent. But on approaching the surface of the ground the folded wing was *unfolded*, and a twisting horizontal flight ensued for a short distance. Then, either the bird flew away at once, to return and again mount and float, or—as I observed on one or two occasions—momentarily touched the ground with its feet before doing so, or even alighted.

I lay a long time in the hollow studying this curious

and, to me, quite fresh experience, as it was repeated over and over again, though the bird sometimes pitched on the ground and rested before resuming its upward flight. The wing, when folded to the bird's side, also appeared to droop a little at the points of the primary feathers—*i. e.* it was not *drawn in tight to the body*, but hung loosely, thus undoubtedly giving some assistance to the zig-zagging effect of the downward plunge.

When I came out of the concealment again I searched for the young, but the other bird rose quite one hundred yards away, and the young had no doubt been ably concealed; and there was plenty of long heather and other cover around, *i. e.* cover enough effectually to conceal the fluffy youngsters. But I enjoyed the hour I spent in that friendly little hollow near to the nesting-site of these interesting Waders.

## ANNELID BIONOMICS.

By REV. HILDERIC FRIEND.

So little is known of the life-history and bionomics of our indigenous annelids that any facts which will lead us along right lines, or give us clues, are of value and should be made public. It is many years since my attention was first directed to the observation of one branch of this subject, *viz.* the Seasonal Order of Appearance. It seems perfectly clear that among the smaller annelids, especially the Enchytræids and the Tubificids, there is an ordered appearance, and that certain genera or species follow each other in a sequence which is significant. Sometimes different species of the same genus appear in a locality at different times. In other cases one genus leads the way and another genus follows. Under certain conditions it would appear as if genera which are members of different families and orders had a special relationship to each other, while at other times the relationship is confined to members of the same family or genus. I can best make my subject clear by adducing a few concrete illustrations, the result of researches undertaken by aid of a Government grant.

I go back, in the first instance, to an experience I had many years ago in my own garden. I had planted a row of celery, but found it did not thrive. This led me to seek for the cause, and I soon discovered that certain white worms (Enchytræids) were at the roots of the plants. They may possibly not have been the original cause of the sickness, but it was very evident that they were doing their part in carrying out the work of destruction. I studied the species carefully, and wrote some account of the matter for publication. Some time later I examined the plants again, and was surprised to find that a new species of Enchytræid was now at work upon them. This led me to inquire whether there might possibly be such a thing as a larval form of Enchytræid, or whether the annelids belonging to this group ever showed different stages in their life-

history. Do Enchytræids moult, or is there ever a marked difference between the young and the adult? I put this question in one or two scientific papers, but have never seen any attempt at an answer. So far as my own researches, extending over two decades, are a guide, I find that there are often very striking differences between young and adult, but nothing which can be described as a larval condition or a moulting process.

That being the case, one had to look for another explanation of the fact. When some time later I received the same forms from Ireland under similar conditions, the explanation seemed clearly to be found in assuming that one form acts as the pioneer, and another appears upon the scene when the stage of decay has somewhat more fully advanced.

This theory, which is perfectly in harmony with what we know to be the case in other departments of life, has just received such striking confirmation that I hope to be able to accumulate facts for its confirmation or refutation. In August, 1911, I spent some time, through the courtesy of Mr. Robert Gurney, in his laboratory on Sutton Broad. The *débris* on the shores was carefully studied, and a full list made of the different species of Enchytræids which were then engaged in breaking up the vegetable *débris*. On leaving the laboratory I collected (August 25th, 1911) a quantity of the *débris*, and kept it for further study. In this gleaning were a number of the Enchytræids which I had tabulated, and they carried on their work during the winter. As the summer came on, however, and the work of the annelids progressed, I found the material contained new species of white worms, such as were nowhere to be found in the previous autumn. Their eggs had clearly been deposited in the locality, and the parents had disappeared. Eventually the cocoons had ripened, and the worms emerged to take up the work at the stage to which the other species had brought it.

Some twenty years ago I worked, one February, along the banks of the Eden near Carlisle, and found some tiny *Fridericias* at work among the decaying vegetable matter. I now find that these species may be successfully looked for at this time of the year, whereas they will be sought in vain in such localities at other seasons. Evidently they have their particular mission, a mission which must be discharged at the time when

the need arises. I have elsewhere called attention to the fact that if one turns over large stones which have been lying sufficiently long to cause the grass to decay, it is no unusual thing to find that such a worm as *Lumbricus rubellus* is attended by a species of *Fridericia* or other Enchytræid. I believe that later on, as the process of decay advances, other Enchytræids put in an appearance and carry on the work.

If now we take a definite view of the matter we see how reasonable it is. And if it should prove that many or all of these minute worms are annuals, the explanation will be all the simpler. Suppose that in autumn the process of decay in vegetable life sets in. The living annelids on the spot take up the task of breaking down the waste. In time their eggs are laid, and they cease to work. But now the annelids emerge from the cocoons which were deposited some time before, and they find themselves surrounded by vegetable matter which has already been prepared by their predecessors. These now take up the task and carry it forward another stage, until possibly a third or a fourth relay of Enchytræids of different species or different genera come to the fore. When these have completed their task, the autumn has again come round, and the group of worms whose task it is to begin the attack on new *débris* is now emerging from the cocoons which were deposited some months before.

Evidently much needs to be done in order to place these surmises on a scientific basis. The only way to place the matter beyond doubt would be for the naturalist to map out a suitable field, and work it steadily and systematically for a couple of years. He would record all the species of annelids which he discovered, note their relative number, the times of their appearance and disappearance, the state of decay as the seasons advanced, and the condition of the material in the intestines of the annelids at different times.

It need hardly be said that this unexplored field is one of the most vital importance in relation to agriculture and horticulture, when we remember that the oozy matter on our river banks, and the alluvium which is so valuable an asset, is in large measure passed through the bodies of annelids, and probably owes much of its value for agricultural purposes to that fact.

It is sincerely to be hoped that the means may be forthcoming which will enable some institution or expert to carry out the research which is necessary in order to solve some of these problems in Annelid Bionomics.

It will readily be seen that the best way to carry out research in this subject would be in the field rather than in the laboratory. If an expert, possessed of the necessary knowledge of indigenous species, and a good working acquaintance with the facts already accumulated at home and abroad, could be set apart for work on purely independent lines, under the control of the Board of Agriculture, he might in some three years be in a position to present a report such as no country hitherto has received on the subject of Annelid Bionomics.

It would probably be discovered that many more Oligochaëts exist in certain soils than we have in the past suspected. I have been greatly astonished at the variety of species which occur in certain clays and loams, gravelly and other soils, where formerly it was thought that they were entirely wanting. Most of these species are at present little known, and their life-history (as in the case of *Helodrilus oculatus*, Hoffm.) is wrapped in obscurity.

## A DAY IN THE ESTEREL HILLS.

BY COLLINGWOOD INGRAM.

To-DAY (March 22nd) I made an excursion into the Esterel Hills in search of some of my old bird friends. I was especially anxious to renew my acquaintance with that most attractive species, the so-called "Dartford" Warbler. By the way, "Dartford" is rather a misleading prefix, and I think "Furze Wren" is perhaps the better name—for this bird is no longer common near the old Kentish town, as it doubtless was a hundred and twenty years ago, when Latham described it from Bexley Heath. Besides, the western portions of the Mediterranean basin are more properly its headquarters. Furthermore, the bird found in the South of England and North-western France differs in several minor respects from the typical bird, and has rightly been recognized as a subspecies by modern ornithologists, who now call it *Sylvia undata dartfordensis*.\* But all this does not concern us on this bright sunny day in the Esterel Hills—we are looking for the living bird, whose habits we know are the same, whether we meet it on the gorsey heaths of Surrey or the thyme-scented slopes of Provence. But even in the Midi it is very local—often inexplicably so. For instance, to-day I spent the whole forenoon without seeing a single Furze Wren, and I was obliged to push on to a certain little corner of the hills, where I knew from experience, now many years old, I would be sure to find it tolerably abundant. Nor was I disappointed. Very soon I espied the slender form of a Furze Wren flying with a jerky, "flickering" effort to an outstanding tuft of tree-heath, whence it immediately commenced to pour out a pleasant little "Whitethroaty" ditty. This song is perhaps not so impulsive as that of its ally, and the brief tune is, I think, more often terminated by a pretty little

\* In a future number I hope to make some critical remarks on the Furze Wrens of Western France.

flourish. In the dazzling sunlight I get a good view of this sprightly bird, and can note his long tail, his slightly raised crest, and, as he turns, even his peculiar orange-coloured eyelids. All these features, coupled with his maroon-coloured breast, make him a very distinctive bird, and I think only a stranger could confuse him with the shorter-tailed Subalpine Warbler (*Sylvia subalpina*), a tree-haunting species, sometimes, by the way, found breeding in the same range of hills.

At the slightest provocation our songster dives into the undergrowth, and, as he worms his way through the dense scrub, I hear his deep, cross little "pe-tcher-tcher-tcher"—and it is easy to understand why the French call him "Pitchou."

If rare elsewhere in our small patch of "maquis," the Pitchou is certainly common enough, and in the space of a couple of acres or so I come across at least four or five pairs. As the sun lowers and the afternoon becomes cooler, the rival males commence to sing one against the other, tossing themselves up into the air, and sailing back again to their favourite bushes; and every now and then I catch a glimpse of their less obtrusive mates, evidently in close attendance upon their lords and masters.

Although fairly early breeders, I do not fancy nesting operations have commenced yet (March 22nd). The few nests I have been fortunate enough to find have always contained eggs by about the middle of April, four being the average clutch. In size these resemble Whitethroat's eggs, but are always more distinctly spotted with a darker shade of greenish-brown, under which are slate-grey shell markings. But, apart from the eggs, the nest itself can be distinguished from that of the commoner Warbler, being a bulkier and more compact structure, composed—in France, at any rate—almost entirely of dried grasses, finer stems being used for the lining. It is placed in the midst of the scrub or "maquis" that forms the bird's home, and in our experience is usually about a couple of feet from the ground.

This "maquis," that covers the sides of so many of these Esterel Hills, is here exceptionally fine, and puts one much in mind of Corsica. It is, indeed, representative of the typical drought-resisting vegetation of the Mediterranean region.

For the most part this scrub grows no higher than a man's waist, and is composed almost exclusively of broom, and tree-heath (*Erica arborea*), and such well-known aromatic plants as *Cistus albidus* and *monspeliensis*, rosemary, thyme, myrtle, *Euphorbia*, and lavender, and many more that I am not botanist enough to name. The sun's rays seem to liberate their delicately pungent scents, and as one forces a passage through the dense growth the hot air is filled with their sweet perfume. But on these arid tracts of land, so interesting from an entomologist's and botanist's point of view, bird-life is sadly deficient, and to-day the Black-headed or Mediterranean Warbler (*Sylvia melanocephala*) was the only other species I met with in the "maquis" proper, and even this southern bird seems to prefer the outskirts of the cork-woods and the more shady fringe of the pine-forest. With his plush-black crown and snow-white throat the male is a very handsome fellow, but he is shy of showing his beauty, and I fancy the best way to observe him is to stand stock-still, when his curiosity will almost certainly bring him into view. On seeing the intruder he always utters a low, scolding "cher, cher," which is taken up by his mate in a slightly different key—"char, char." Most likely they have already got a nest in a clump of broom or heath, for I have frequently seen eggs by the beginning of March, though, like many sedentary birds, they are very irregular in their nesting habits, and some pairs do not lay until much later. Two, probably three, broods are reared in the year.

On my way home I explored a portion of the woodlands, and found a couple of Short-toed Tree-Creepers (*Certhia brachydactyla ultramontana*) feeding on some cork-trees. These birds, as well as Tits, appear to be greatly attracted by these trees, no doubt on account of the abundance of insect-food they find ensconced among the corrugations of the rough bark. Last year, in the same district, I found a Creeper's nest containing six beautifully marked eggs; these were much more heavily and richly spotted than any I have seen taken in England, but I believe this is invariably the case with the eggs of this "Short-toed" race. By the way, even at a distance, the dappled backs of these birds appear to be conspicuously greyer than in our British Tree-Creeper (*Certhia familiaris britannica*,

Ridgway), and if one climbs up to about four or five thousand feet into the mountains behind Nice—I can see their snow-capped peaks from where I stand—one finds that this bird meets (and is found with) a paler and still greyer form, often so broadly streaked and diffused with whitish on the back that certain individuals have an almost hoary appearance. This is the *Certhia costæ* of the older French writers, but now we are told to call it *Certhia familiaris macrodactyla*. "Short-toed" and "brachydactyla," be it remarked, are both misleading names, for it is the *claws*, not the toes, that are usually shorter in this group.

Jays are not rare in the Esterels, and as I move homewards they advertise my progress with harsh screeches of annoyance. But not until I get among the umbrella pines that make Valescure so beautiful do I meet with the Magpie. Here this bird is very numerous, as it also is along the dry pine-covered slopes of the Montagnes des Maures. I would not mention this fact were the bird not so comparatively rare along the Riviera. With a few exceptions, indeed, it is uncommon in most parts of the Alpes Maritimes, which is probably the only French department of which this can be truthfully said, for, thanks to its unpalatable flesh, it is very generally distributed throughout the country.

## THE BIRDS OF THAT PORTION OF THE NORTH-EAST COAST BETWEEN TYNEMOUTH AND SEATON SLUICE, NORTHUMBERLAND.

By J. M. CHARLTON.

(Concluded from p. 146.)

**LITTLE GULL** (*Larus minutus*).—An occasional autumn and winter visitant. The first I have a record of were three, which were shot by a poultorer and purchased by Mr. Hancock about 1840. Numbers occurred in the winter of 1869–70, when a great immigration was noticed on the entire east coast of England (Howard Saunders, 'Manual of British Birds'). At St. Mary's Island an immature specimen was shot on Oct. 2nd, 1895. Mr. J. Wright informs me that two passed through his hands in the autumn of 1905, which had been shot at St. Mary's Island, and Mr. Taylor set up one which was shot near Tynemouth Pier at the same season. Two are mentioned by Mr. H. S. Wallace in the 'Newcastle Weekly Chronicle' as being observed by him off the coast at Hartley in the autumn of 1910.

**BLACK-HEADED GULL** (*L. ridibundus*).—This is the commonest Gull we have with us in the autumn and winter, but in spring all depart inland except a few immature birds. Their favourite feeding place is the water above the extremity of the sewer-pipe which is opposite the cliffs at Whitley, and of course numbers follow the plough.

**COMMON GULL** (*L. canus*).—Fairly numerous in winter and early spring, and also seen in summer, but only occasionally.

**HERRING-GULL** (*L. argentatus*).—A fairly common winter and spring visitant, occasionally seen in summer. In life the feet and legs of this species are a beautiful pink, but a few minutes after death they turn a dull flesh colour.

**LESSER BLACK-BACKED GULL** (*L. fuscus*).—This species is resident, but most numerous in early spring, just before building operations have begun at the Farne Islands further north. In

winter this species gives place to the Herring-Gull, and adult birds are by no means numerous. This has been noticed by Selby, in his 'Catalogue,' as being true for all the Northumbrian coast, but no mention is made of it by Hancock. Immature birds are present all the year round. It is extraordinary how incapable this Gull is of being able to immerse itself in water when swimming on the surface. I remember one day I observed a pinioned bird, at Tynemouth Park lake, which was trying hard to get a piece of bread lying on the bottom. It tried to duck, sink, and, by leaping up, plunge down, but all in vain, and the object of its desire was not twelve inches beneath the surface!

GREATER BLACK-BACKED GULL (*L. marinus*).—A winter visitor, at which season adult individuals are quite as numerous as those of *L. fuscus*. My brother and I have examined numbers of this species in various stages of plumage, and the results of these investigations, although previously omitted, I include with all reserve: The male in most cases is a trifle larger than the female when both are the same age. The size of the immature increases year by year until the year before moulting into the mature plumage, probably the fourth; then the bird seems to have attained its largest size, and on the moult to full mature plumage the former looseness in the build disappears, and the feathers become more compact and close fitting. The difference in this character of the plumage between the immature and adult can often be discerned when in flight. The following table of average measurements from birds shot by my brother will illustrate the above:—

	IMMATURE.			ADULT.	
	1st year, ♂ .	2nd year, ♂ .	4th year, ♂ .	About 8th year, ♀ .	About 6th year, ♂ .
Length .....	26.5 in.	28.0 in.	29.5 in.	27.0 in.	28.5 in.
" of wing .....	18.0 "	18.0 "	19.0 "	18.5 "	18.7 "
" of beak .....	2.0 "	2.2 "	2.7 "	2.0 "	2.4 "
" of gape .....	3.5 "	3.5 "	4.05 "	3.5 "	4.0 "
" of middle toe.....	3.0 "	3.0 "	3.0 "	3.0 "	3.0 "
" of tarsus .....	3.0 "	3.0 "	3.2 "	3.0 "	3.0 "
" of middle tail feather	6.9 "	7.0 "	7.7 "	7.0 "	7.0 "
Length from tip to tip of wings.....	60.0 "	65.0 "	66.0 "	63.0 "	64.0 "
Weight .....	3 lb.	3½ lb.	4½ lb.	4 lb.	3 lb. 9 oz.

This cannot, of course, be taken as being a standard of the measurement of this species, as individuals of the same age differ greatly. However, it seems to be a broad outline of the changes of size. Among the number of examples my brother has examined, the young bird in the last year of its immature plumage most frequently was larger than an adult of the same sex. In the immature birds the colour of the iris, of course, is brown, and all the adults we have examined have had very *light yellowish* irises, not *red*, as is stated by Saunders in his 'Manual' as the usual colour of the eye of this species. H. V. Charlton once observed a Greater Black-backed swooping at a Guillemot which was on the water close by the shore. The assailant would rise up and come skimming near the surface at a great speed towards the Guillemot, which, on its almost striking it, would suddenly dive. This continued for some time, and a gentleman standing by asked if it was a Sea-Eagle! Eventually it departed, and the Guillemot was left in peace.

**GLAUCOUS GULL** (*L. glaucus*).—A rare winter visitant; immature birds occasionally pass along the coast. I have record of two mature birds, which Mr. J. Duncan informs me he examined, and which had been shot at St. Mary's Island in 1872; and on Jan. 22nd, 1911, H. V. Charlton observed an immature bird feeding with immature Greater Black-backs at the sewer-mouth at Whitley Bay. A wave broke over it once, and completely immersed it, but it rose immediately and shook itself. Its body and wings appeared longer than the other Gulls, and it was creamy in colour. It kept more or less to itself, and flew round the others several times. The first occurrence was in the year of the great influx of this species on the east coast of Scotland.

**ICELAND GULL** (*L. leucopterus*).—A rare winter visitant; two immature birds presented to Newcastle Museum by Selby were shot at Cullercoats in January, 1830. My brother, H. V. Charlton, shot a very fine immature specimen, in the third year, in the fields behind Cullercoats on Feb. 10th, 1906.

**KITTIWAKE GULL** (*Rissa tridactyla*).—A not uncommon resident, but keeping well out to sea. It breeds at the Lorne Islands, to which the adults depart for the summer months. This part of the coast is indebted to the close proximity of the

Farnes for many of the birds which visit here, journeying to and from their breeding stations on these islands.

**GREAT SKUA** (*Stercorarius catarrhactes*).—A winter visitant of irregular occurrence. The bird figured by Bewick in his 'British Birds' is mentioned by him as having been shot near Tynemouth in September, 1820. About the year 1859 Mr. Hancock says, in his 'Catalogue,' that while shooting at St. Mary's Island he observed a Tern, which had been wounded and fallen into the sea out of reach, eaten alive by a Great Skua which had settled in the sea beside it. Mr. C. M. Adamson, in his 'Scraps about Birds,' mentions a specimen in his possession which was shot at sea, near Cullercoats, on Jan. 24th, 1863.

**POMATORHINE SKUA** (*S. pomatorhinus*).—An irregular autumn visitant on migration south, of which there are but four records. The first were two shot near Tynemouth on Oct. 21st, 1837, by Mr. Duncan's father; a mature female shot at Tynemouth on Sept. 14th, 1846; another in full adult plumage was shot by Mr. J. Duncan at St. Mary's Island on Oct. 16th, 1887.

**ARCTIC or RICHARDSON'S SKUA** (*S. crepidatus*).—An occasional visitant on migration in autumn. The first record I have is one mentioned in the Catalogue of the Allan (Old) Museum, Newcastle-on-Tyne. There it is called the "Black-toed Gull," which is the immature of the Arctic Skua. It was killed at Cullercoats about 1810, and presented to the museum by Mr. H. Edmonston, of Newcastle-on-Tyne. In October, 1898, an adult male was procured at St. Mary's Island; and on Sept. 24th, 1895, a mature male of the dark variety and an adult female of the light variety were also procured at the island. Several more have also been shot on migration. On Oct. 25th, 1909, my brother observed six Skuas flying past St. Mary's Island in company with some immature Lesser Black-backed Gulls. By the fishermen this bird is called "Dort-bord" (Dirt-bird), from its habit of catching the food disgorged by Gulls when it chases them.

**BUFFON'S SKUA** (*S. parasiticus*).—A rare autumn visitant on migration. I have three records of this species. The first, an immature bird, shot at Tynemouth on Sept. 30th, 1841; the second specimen, a fine adult, was shot by Mr. Ewen in 1892, at St. Mary's, and is now in his possession; the last, an im-

mature, was shot by Mr. J. Duncan on Whitley Sands on Sept. 24th, 1896, and is now in Mr. Coxon's collection. The year of the second occurrence was that of the great invasion of this species along the British coast.

RAZORBILL (*Alca torda*).—An occasional winter and early spring visitant.

COMMON GUILLEMOT (*Uria troile*).—A winter and early spring visitor of fairly common occurrence. Several specimens of the variety, the Ringed Guillemot (*U. lacrymans*), have been shot near St. Mary's Island and off Whitley Sands. This and the preceding species, as well as the Shag, go by the name of "Divers" among the less versed of the fishermen, and thus much confusion is apt to arise, especially with reference to the Divers proper which go by the same name.

BLACK GUILLEMOT (*U. grylle*).—A rare winter visitant, of which I have but two records. Mr. C. M. Adamson, in his 'Scraps about Birds,' mentions a young bird which was shot near Cullercoats in October, 1836. A second, Mr. J. Wright informs me, was shot at Whitley in 1905, and passed through his hands.

LITTLE AUK (*Mergulus alle*).—An occasional winter visitor of irregular occurrence. Mr. Hancock, in his 'Catalogue of Northumberland and Durham Birds,' mentions that in November, 1841, large numbers passed along the coast, and many were procured. A similar occurrence took place in January, 1895, when many were picked up along the coast during the very severe gales we had during that month. They had been overwhelmed by the force of the storm. This large influx of these birds was observed all along the coast, and several hundreds were taken, as is mentioned by Howard Saunders in his 'Manual.' The winter of 1910-1911 was also notable for a visitation of numbers of these birds all along the north-east coast. About twenty examples were picked up in this district, and many of them were lying in the fields inland in such an exhausted condition that they were totally unable to escape, and were easily caught. This occurred during the last week in December and the first in January, and the gales were heavy at the time. When they have settled on the level fields these birds have great difficulty in rising, because they cannot use their feet

as a means of propulsion in the same manner as on the surface of the water.

**PUFFIN** (*Fratercula arctica*).—Occasionally seen off the coast at all times of the year. Visitors from the Farne Islands are to be seen in summer. One was caught on Cullercoats rocks on May 11th, 1903, and brought to me by some boys. It seemed much exhausted, and had probably been stunned by being driven against the breakwater by the heavy sea running at the time. It only lived for a few hours afterwards. A similar occurrence happened in 1911. The fishermen call this bird "Tammy," or "Tommie Norie."

**GREAT NORTHERN DIVER** (*Colymbus glacialis*).—An uncommon winter visitant. Of the adults I have but two records, namely, one in winter plumage, shot at St. Mary's Island in October, 1901, and one which I myself saw fly close in front of Beverley Terrace on Dec. 15th, 1909. The former passed through the hands of the late Mr. J. Jackson, birdstuffer, of Newcastle-on-Tyne. It measured 33 in. in length, and weighed 10 lb. From this size, which is exceptionally large for a British specimen, it must be concluded that it was a male bird. The second occurrence mentioned took place during a storm. The bird was flying south, and was probably on migration, and had been driven into the shore by stress of weather. The immatures occur very occasionally.

**BLACK-THROATED DIVER** (*C. arcticus*).—A rare winter visitant. In 'The Zoologist' (vol. vi. p. 2067), T. J. Bold, Newcastle-on-Tyne, mentions a specimen which had been shot at Cullercoats on Feb. 5th, 1848. It was in a very interesting dress, the black throat characteristic of the summer plumage being nearly complete. With this exception the few specimens I have knowledge of were immatures.

**RED-THROATED DIVER** (*C. septentrionalis*).—A fairly common winter visitant, which is often seen diving near the coast. It is of infrequent occurrence in the summer plumage, *i. e.* with the red throat. The best example I know of this stage is in the hands of Mr. Richardson, taxidermist, Holywell. In January, 1911, a Diver arrived on Whitley Reservoir, and remained several weeks there.

**GREAT CRESTED GREBE** (*Podiceps cristatus*).—A specimen in

complete summer plumage was shot in Easter week, 1860, at the mouth of the Tyne; this is now in the Hancock collection, Newcastle-on-Tyne.

**RED-NECKED GREBE** (*P. griseigena*).—J. Hancock mentions a specimen in summer plumage, which was "found alive a few years ago on Cullercoats sands" (probably about 1870); another occurred in 1891.

[Another specimen I observed stuffed in a shop at Tynemouth, together with a Marsh Harrier, and which on inquiries I learnt had been shot off Tynemouth in about 1820.]

**SLAVONIAN or HORNED GREBE** (*P. auritus*).—A very rare spring visitant. A bird in full summer plumage was shot on April 26th, 1830, off Cullercoats. On April 30th, 1860, another was shot near Cullercoats, also in summer plumage. A mature male, in winter plumage, was shot at St. Mary's Island on March 8th, 1894.

**LITTLE GREBE** (*P. fluviatilis*).—A casual visitant in winter. Mr. J. Wright informs me that a bird passed through his hands which had been shot at Holywell Dene in October, 1909. I am informed by Mr. Taylor that when the cobles were at the herring-nets in the autumn of 1909, the crews observed numbers of these birds which swam and dived all round. They occasionally occur on Whitley old reservoir in spring and summer, and breed there in some years. In 1910 two pairs arrived in the beginning of March, and bred among the willow-stems submerged in the water. They remained with their young until the end of September and then departed, probably for the sea-coast, returning on March 10th in the following year (1911). They dived and swam about in all parts of the reservoir, the respective pairs occasionally chasing each other about, flapping along the surface, but never rising completely off the water. They frequently gave their call, "whit," repeated several times very rapidly, and becoming lower in tone at the end. They appeared to find abundance of food, the reservoir being known to abound with large numbers of sticklebacks and minnows.

**STORM PETREL** (*Procellaria pelagica*).—A winter visitor of irregular occurrence, only observed during the prevalence of heavy storms, when it is driven to the coast. In his 'Scraps about Birds,' C. M. Adamson states that: "In the end of June,

1836, many Storm Petrels appeared on the coast. Some were killed near the shore at Cullercoats, and at Pape's game-shop several were sold." One of these birds was killed by a stone. One was caught on the lantern on St. Mary's Island on Nov. 19th, 1898, and is in the possession of Mr. Crisp, who lives there. There are many more occurrences of this species here. I am informed that recently a Petrel was noticed swimming about in the bay north of the island for several hours during a heavy gale.

**MANX SHEARWATER** (*Puffinus anglorum*).—Probably occurs more frequently some distance out to sea than is generally supposed. J. Hancock says: "I know of the capture of but two individuals within the district [Northumberland and Durham coast]; one was killed off Cullercoats on 20th May, 1870." In the 'Field' (June 4th, 1870), C. M. Adamson says of this specimen:—"When on the coast of I bought a Shearwater Petrel, which I was told had been drowned by having got entangled in the fishermen's nets. It was saturated with salt water and dirty. I washed it in fresh, soft water, and next morning it was as clean and dry as it probably ever had been. It was the first I have seen recently killed; and what a singular bird it is, apparently approximating to various genera. In form and colour, when lying dead, it resembles a foolish Guillemot in its winter dress, but it is smaller. The plumage, particularly the primaries and other wing-feathers, instead of being harsh to the touch, as in the Auk's, are soft, more like some land bird's, and resemble in some degree those of an Owl; the beak, which is black, resembles that of a Cormorant (Willughby remarks this). The feet and legs resemble those of the Red-throated Diver, and the leg-bone, which joins the thigh-bone, is elongated, as in the Diver. The colour of the legs is singular, the outside being pink, irregularly spotted black, with a hard outline. The wings, which are placed further back than most species, when extended, resemble those of an Albatross. From the formation of this bird one is led to suppose that it can dive for food as well as take it from the surface of the sea when flying, as other Petrels are said to do, and this bird's having been taken as it was rather confirms this supposition. [This theory has been proved correct within more recent years; *vide*

'Manual of British Birds,' H. Saunders.] Its congeners, the Fulmar and Stormy Petrel, have not the legs placed so far behind, nor so flat; and they in general appearance more nearly resemble Gulls in shape, and from their form would appear to be unable to dive. The question arises as to what this bird was doing on our coast at this season. Hewitson says it breeds in June and July in Shetland; probably it is a regular migrant past our shores from its winter home to its breeding stations in numbers, but keeps far out to sea or flies quickly past, as it is rarely procured." Since the author of the above has not definitely stated that he meant by "Shearwater" the Manx Shearwater (*P. anglorum*), the editor of the 'Field' has evidently taken this note as referring to the Great Shearwater (*P. gravis*), as in a footnote he remarks on this latter, calling it the "Shearwater or Greater Shearwater"; and, since the article is headed "The Shearwater," it is rather confusing. However, there is no doubt that the bird obtained by Adamson belonged to *P. anglorum*, owing to its small size, and also because Hancock has identified it as being of this species in his 'Catalogue.' Besides which, Adamson evidently meant the Manx Shearwater, by several references from various authors from descriptions of this species. Mr. Robert Duncan informs me that this specimen was procured from the fishermen by his father, and sold to Mr. Adamson. My brother observed a bird of this species in the autumn of 1907 off Tynemouth Pier, flying close over the surface of the water.

LEVANTINE SHEARWATER (*P. yelkouanus*).—J. Hancock mentions a specimen, somewhat resembling the Manx Shearwater, only larger, as being shot off Cullercoats on May 20th, 1870, and Howard Saunders says, in his 'Manual,' that he believes this specimen was an example of the *P. yelkouanus*. J. Hancock describes the bird as being larger in size, with the bill a quarter of inch longer, the wings from the carpal joint to the end of the primaries half an inch at least, and the tarsi and middle toe also a quarter of an inch longer than in *P. anglorum*. He also says:—"The colour also differs considerably, the back being two shades paler, and the whole of the under parts having the feathers tipped with ash colour; whilst in the true *P. anglorum* these parts are pure white." This agrees with the description

of *P. yelkouanus* given by Saunders. The particular bird, presented by Mr. Duncan, is in the Hancock Museum.

FULMAR (*Fulmarus glacialis*).—A very rare winter visitor in stormy weather. J. Hancock says: "Many years ago I found a specimen washed up on Whitley Sands." This was probably about 1842. Another was shot by Mr. J. Duncan at the mouth of the Tyne in 1895.

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In addition to the gentlemen mentioned in the Introduction, I have also to thank E. Leonard Gill, Esq., Curator of the Hancock Museum, Newcastle-on-Tyne, for some notes with respect to the geology of the district; and specially T. H. Nelson, Esq., of Redcar (author of the 'Birds of Yorkshire'), for reading through some of the MS. and advising me on certain points.

(An "Addenda et Corrigenda" will follow.)

BRIEF RECORDS OF *CHÆTECHYLENE VESUVIANA*,  
NEWP., AND OTHER MYRIOPODS NEW TO THE  
BRITISH FAUNA.

BY RICHARD S. BAGNALL, F.L.S.

(Hope Department of Zoology, University Museum, Oxford.)

SOME years ago Dr. Randell Jackson sent me a collection of Chilopods made by him at Sidmouth, in Devonshire, amongst which were four specimens of a large Geophilid. I recently submitted these to Mr. Edw. Ellingsen, of Kragerö, Norway, who reported that he had not seen the species before, suggesting that it might be *Chætechylene vesuviana*. Prof. Verhoeff has since seen the specimen, and writes that they are undoubtedly that species.

*CHÆTECHYLENE VESUVIANA* (Newp.).

*Geophilus vesuvianus*, Newport, Trans. Linn. Society, London, xix. p. 435, 1844.

The species is described fully by Latzel in his 'Die Myriopoden Osterr.-Ungar. Monarchie' on page 201, from which it will be seen that the species differs in many particulars from *C. montana*, Meinert.

*C. montana* rarely exceeds 30 mm. in length by 1·4 mm. in breadth, whilst *C. vesuviana* measures up to 52 mm. by 2·5 mm. in breadth; the former possesses 57 to 61 pairs of legs in the female and 55 to 59 in the male; and the latter 63 to 75 in the female, and 61 to 77 in the male. Other points to note in Latzel's description are as follows:—

C. VESUVIANA.

*Pori anales duo, minimi. Spiracula sat magna, rotunda. Pedes anales . . . femina tenues, maris crassissimi.*

C. MONTANA.

*Pori anales evanidi. Spiracula sat parva, rotunda. Pedes anales . . . femina tenues, maris incrassati.*

The species was originally described by Newport from the slopes of Vesuvius, and must apparently be classed in that group

of Lusitanian forms of which examples appear in this country in the south-west of England and in Ireland.

In collecting material towards an account of the Myriopods of Northumberland and Durham, I have brought to light several interesting forms previously unrecorded as British.

The Symphyla and Pauropoda have already formed the subject of several papers, and I now think it advisable to briefly record the following Chilopods and Diplopods:—

#### CHILOPODA.

*Lithobius nigrifrons*, Latz. Two examples from Gibside, Co. Durham, 1906; unfortunately so mutilated as to make the positive identification impossible.

*L. borealis*, Mein. Rests as British on a mutilated specimen found by Mr. Evans on Ben Ledi. Wooler Moor, one male and one juvenile; Skirlnaked, near Wooler, Northumberland, one male and one female, May, 1912; Ben Vorlich, one female, June, 1912.

#### DIPLOPODA.

*Glomeris marginata*, Vill., var. *perplexa*. Two specimens on the Durham side of the Tees, Egglestone-in-Teesdale, and a few from Gibside. A small, purplish form marked with yellow, as in *G. connexa*, C. K.

*Polydesmus coriaceus*, Porat. One male from a mole's nest, Bradbury, Co. Durham. Two young specimens are probably referable to the same species.

*Titanosoma jurassicum*, Verh. Recently described from a single female found at Kelheim, on the Danube. I have found it in large numbers in a dene near Fencehouses, and single examples on the Wear at Penshaw, and in Gibside. Since then I have seen it in gardens at Penshaw, Hylton, Gibside, and Fellside, Co. Durham, Newcastle, and Oxford, whilst Dr. Randal Jackson takes it not uncommonly at Chester.

*Brachychæteuma bagnalli*, Verh. One male, Gibside, Co. Durham. This blind species is the type of a new genus and family. Prof. Verhoeff has already briefly described it in the Zool. Anzeig., whilst a very complete account will appear shortly in

the 'Transactions of the Natural History Society of Northumberland and Durham.'

*Microchordeuma* sp. One female, Gibside.

*Craspedosoma simile* Verhoeff; *C. simile rhenanum* Verhoeff. Both these forms occur in Gibside, where I first took them in the spring of this year.

*Isobates varicornis*, C. K. Common under fir-bark, Gibside, May, 1911, and June, 1912, one female; Harbottle, June, 1911; and Stocksfield, Northumberland, June, 1912.

*Napoiulus* sp. (most probably *palmatus*, Nemec.). Several females from a dene near Fencehouses, Co. Durham.

British representatives of the genera *Titanosoma*, *Brachy-chaeteuma*, *Microchordeuma*, *Isobates*, and *Napoiulus* were previously unknown.

## NOTES AND QUERIES.

## MAMMALIA.

**Two Habits of the Common Squirrel.**—This last year I have noticed two actions of Squirrels which seem sufficiently curious to publish. The first was in Scotland. One day towards the end of last August, as I was sitting in Barcaldine Woods (Argyllshire), I saw a Squirrel come down from a tree, and then not only saw but also heard it begin gnawing at something on the ground fifteen or twenty yards away. I could not see what the object was, so I contented myself with marking the Squirrel's position and awaiting developments. The substance seemed very hard, and the animal changed its position several times, as if to get into a better position for its gnawing. At length, after more than ten minutes' almost unbroken jaw-work, the Squirrel suddenly took fright and bounded off. I then walked up to the spot, and there saw that what it had been so assiduously rasping at was a fallen antler of a Fallow-Deer. It is before me as I write. Its anterior surface (which was lying uppermost) has fully two-thirds of the outer layer nibbled away, looking like a stick gnawed by rabbits. There are a few small notches on the burr itself, then some untouched surface, then nearly 8 in. where, for a breadth varying from  $\frac{1}{2}$  in. to  $1\frac{1}{2}$  in., no brown outer layer is left. The first and second tines are untouched, but the third is so gnawed away as to look like a bit of whittled stick. In addition two deep hollows, about  $\frac{3}{4}$  in. long, and reaching nearly half-way through the antler, are to be seen, and the expanded terminal part at one place looks as if it were bread-and-butter, and had had a respectable bite taken out of it. The side that was lying on the ground has not been touched. The ten minutes' gnawing that I saw could not have produced a tithe of this effect, and we are forced to believe that this Squirrel (or perhaps several, for there were plenty about) was in the habit of coming regularly to partake of this extremely dry morsel. It would be interesting to know if others have noticed similar propensities in the Squirrel; I believe the habit is well known among certain other species, such as cows.

Another action of Squirrels, which to me at least was new, I saw a fortnight later on the banks of the Tees above Barnard Castle.

Two Squirrels had been playing their usual game of "tag" on a tree, and now one had gone, and the other was coming straight down the trunk in the characteristic way—body vertical, head forwards, and hind legs spread out and flattened against the tree. I think he then saw us; at any rate, he stopped short, and, after a few motionless moments, suddenly lifted both front feet right off the trunk, and held them out at an angle of 45° with the vertical. I saw this through field-glasses, and a friend also saw it with the naked eye. In this extraordinary position—balanced, no doubt, to some extent by the tail, but actually supported by the hind claws alone—he remained for a time which we agreed was anything from two to five seconds; he then resumed a normal attitude, and proceeded on his downward way. What was the object of assuming this position I cannot conceive. I was chiefly impressed by the revelation of the enormous muscular strength of the hind limbs.—JULIAN S. HUXLEY (Balliol College, Oxford).

#### A V E S.

**An Unlucky Pair of Stonechats.**—Last April I was watching a pair of Stonechats which seemed to be breeding somewhere by a roadside near here, and in due time I noticed that they had full-grown young with them. This was interesting, for I have never found this species breeding here before, though the Whinchat does so every year in considerable numbers. On June 9th an intelligent boy who looks after cows grazing by the roadside told me that he had found a Whinchat's nest just where the Stonechats had been. This was, however, in reality a Stonechat's nest with six typical eggs, and the first I had ever seen. Naturally, I was much disappointed to find two days later, from the same boy, that the eggs had been hatched but had all vanished. Mr. O. V. Aplin visited the robbed nest with me the next day, and came to the conclusion that the robber was a Stoat or Weasel, as the nest itself had hardly been displaced. On June 19th the same boy gleefully informed me that the birds had built another nest, and that there were six eggs in it. The first nest had been placed well out of sight in a hole in a bank some distance from the road, but the new one was not more than two feet from it, snugly placed at the bottom of a little thorn-bush about a foot and a half high. It was a well-built nest containing six eggs, rather less spotted with pale reddish brown than the others. But these plucky and persistent birds were not fated to bring up a second brood this year. A road-mender, having, I suppose, nothing better to do, fell to chopping away the little thorn-bushes by the roadside, and before

he could be stopped had exercised his zeal on the home of the Stonechats without knowing what it contained. The persistence and ill-luck of the pair deserve, I think, a record in 'The Zoologist.'—W. WARDE FOWLER (Kingham, Chipping Norton).

**Little Auk (*Mergulus alle*) in Bedfordshire.**—During the spell of severe weather at the end of January and beginning of February last no fewer than five Little Auks were taken in Bedfordshire. One I saw on Feb. 3rd whilst being preserved by Mr. A. Covington; it had been picked up at Haynes a few days previously. Two others found subsequently at Great Barford and Ickwell were mounted by the same taxidermist. Mr. Young, another local birdstuffer, had two brought in to him from Ravensden and Wootton. Some twelve previous occurrences of Little Auks in this county are on record.—J. STEELE ELLIOTT (Dowles Manor, Salop).

**Red-throated Diver (*Colymbus septentrionalis*) in Worcestershire.**—An adult Red-throated Diver, which from the length of the bill and wings is probably a female, was shot on Feb. 9th last on one of the pools at Spring Grove, Wribbenhall, Worcestershire. It was kindly sent to me by Mr. T. W. Binyon, and it is now in the Worcester Museum.—J. STEELE ELLIOTT (Dowles Manor, Salop).

**Great Crested Grebes nesting in the County of London.**—A pair of Great Crested Grebes (*Podiceps cristatus*) are nesting (if they have not already hatched out) on the easternmost New River Reservoir off Lordship Road, Stoke Newington, in the County of London, and within three miles of St. Paul's. The nest is within sixty or seventy yards of the highway passing over the New River bridge and easily seen, being built up about a foot above the surface of the water, with no reeds or cover to screen it. Yarrell mentions this bird as breeding on the Welsh tarns, the meres of Cheshire, and the Broads of Norfolk, but no record of it appears in Hudson's book on the 'Birds of London.'\* A noticeable feature of the occurrence is the apparent absence of shyness in so shy a bird. The nest is only about fifteen yards from the nearest bank, built on an exposed sheet of water surrounded by gardens, and quite devoid of cover. Yesterday, with a large tripod camera, my photographer took three photos, but the male bird, then sitting on the nest, never left it, while the female swam unconcernedly in the vicinity. If the photos are successful I will send one for your inspection.—WM. F. DEWEY (Metropolitan Borough of Islington, Town Hall, Upper Street, N., July 8th, 1912).

\* Probably breeds on the Penn Ponds, Richmond Park (cf. Dalgliesh 'Zoologist,' 1904, p. 193.—Ed.).

**Notes from the Avon Valley, Hampshire.**—Last autumn and winter were very unprolific in incidents of bird-life worth recording. In the early part of September two or three Greenshanks were shot, and at the same time two other birds were killed, which from description were Bar-tailed Godwits, but I did not see the latter. The wild-fowl shooting opened with very fair prospects of sport; home-bred ducks were in fair numbers, but as the season advanced the frequent rains and weed-encumbered streams caused the river to be in a flooded condition most of the winter, so that a near approach was often impossible. When a suitable occasion presented itself fairly good "bags" resulted, but nothing of any rarity was met with, such species as Golden-eye, Pochard, Gadwall, &c., being entirely absent, on account of the comparatively mild weather. The most abundant visitors were Wigeon, of which one very large flock was seen during the highest water, but comparatively few were obtained. On another occasion a large number of Teal visited the locality, and nearly two hundred were killed, but generally these beautiful little ducks were scarce, although a number of nests—in their season—were reported from a few miles distant. That the Shoveler nested in the locality is a certainty, as more than one brood were seen when quite unable to fly. Snipe were not so abundant as they were the previous winter, and Jack-Snipe were decidedly scarcer. A rather large specimen of the Common Snipe was reported as a Great Snipe, but I may confidently say it was referable to the commoner species. I heard of a single Bittern in two or three places, but possibly it was the same bird visiting different localities (although my experience points to this species abiding generally in the place selected, if quiet and suitable), as I did not hear of its occurrence twice in the same neighbourhood, and on careful inquiry I could not learn that a specimen of this handsome species had been killed.

In the autumn a fine dark female of the Common Buzzard (*Buteo vulgaris*), measuring over four feet across extended wings, and weighing nearly three pounds, was killed on an estate where the *Falconidae* are supposed to be strictly protected. I suppose if a gamekeeper in his rambles with the gun chances to see a large hawk within range of his weapon, the temptation to kill becomes irresistible, and is not always made known in the country-side generally, except through the gossip at the village inn. In this case the facts reached the ears of the proprietor of the estate, who casually reprimanded his man, whose excuse for murder was that he had seen the hawk pounce upon a young Pheasant, and had partly devoured it when

shot. *October* is not often a period of the year when *young Pheasants* are much in evidence, and on dissecting the hawk the separated limbs, hands and all, of a *Mole* filled the stomach, and its last mouthful—still in its throat—was the empty, velvety skin of this peculiar mammal, and it was interesting and remarkable how cleanly all the flesh had been extracted, even to the skull. The Great Crested Grebe is by no means a common bird in Hants, but one came to an untimely end in rather a curious manner. One dark night in November a rural postman was returning with his load to the office, when suddenly a large bird (attracted, I suppose, by the light on his bicycle) flew against him with great force, and, being thus knocked down, the bicycle ran over and broke the bird's neck. It was sent to me for identification, with the query, "We think it is a *Puffin*."

Near a river-keeper's house are a number of semi-wild Ducks, which nest somewhat freely, but during the past two years it was noticed that the broods of ducklings gradually decreased without any very visible cause; Jackdaws, large Pike, and Rats were alike blamed for the depredations. This season, however, the Rats did not appear so abundant and troublesome as they had in previous years; still the ducklings disappeared. It had been remarked by men who were about in the very early morning that for the past two springs a large Heron, always alone, was often seen in the meadows somewhere near, but immediately cleared off on observing anyone, not to be seen again till the following dawn. On closely watching him he was found to be the culprit, and at last was shot, with a whole fluffy duckling in his capacious throat. The man who shot it said he had never seen so large a bird, or one in such grand plumage. It seems rather strange he was not suspected long before he was killed.

Some time ago a person inquired if I had a Thick-knee (*Edicnemus scolopax*) I could show him amongst my few birds, as he had heard and read that the species was not rare in the valley of the Avon from Christchurch to Salisbury. I had heard such a report previously, but, speaking of this immediate neighbourhood, I think a mistake has been made in identification, and some other species must be intended. In a measure I am ignorant of its occurrence farther north, in the vicinity of Salisbury, where the down-lands seem more suitable to its requirements than the damp low-lying meadows between Christchurch and Fordingbridge, and the specimens I have seen here are few and far between. The remark as to its numbers may be far more fittingly applied to the Redshank, which is certainly

on the increase, except for a few weeks in the depth of winter being resident, and nests comparatively freely in the meadows, where a few years ago it was quite unknown. I was told, on their first arrival this year in the early spring, a group of more than thirty birds was seen flying up the valley. They nest near Fordingbridge, and I have known specimens to be killed on the *heath-lands* as far west as Verwood in Dorsetshire, and I am not at all sure of the limit of its western range. On this point our friends in Dorset may speak more freely. In 1911 the Little Owl reared broods in at least two localities a few miles apart, but I think most of the birds have since been shot.  
—G. B. CORBIN (Ringwood, Hants).

#### CRUSTACEA.

**What is the Maximum Weight of the Edible Crab?**—It has been stated in print (the reference to which I cannot at present remember), and frequently alleged, that on the Cornish coast *Cancer pagurus* has been known to attain the weight of 20 lb. The late Thomas Cornish, in these columns (Zool. 1881, p. 214), stated that a huge Crab was brought to his house at Penzance, *when he was absent*, which was stated to have turned the scale at 16 lb., and he believed that this record was a true one. During a recent visit to Penzance I endeavoured to substantiate these statements, but without success. The first man I interrogated, a catcher and purveyor of Crabs, told me without any hesitation that he had handled a "cock-crab" which weighed 23 lb.! Another man, who seemed more cautious, assured me he had once seen a Crab weighed at 20 lb. I then had recourse to the kind assistance of the editor of the 'Cornishman,' who undertook the inquiry, and as a result the following paragraph appeared in his paper (June 20th last):—"The largest Crab caught on the Cornish coast of which we have the recorded weight turned the scales at 9½ lb. An 8 lb. Crab, however, is a large specimen." I subsequently consulted our well-known contributor, Mr. A. Patterson, of Yarmouth, as to recorded weights on the east coast, and received the following reply:—"I have overhauled several folk and several stalls, and can only learn that 5 lb. is a big Crab—a very big one, possibly 5½ lb. to 6 lb., may be a record."—W. L. DISTANT.

Since this was written I have learned that a Crab was caught at Brixham, Devon, on Oct. 20th last, which weighed 12 lb., and is now in the Hull Museum. I have the authority of Mr. T. Sheppard, the Curator of that institution, that the statement is correct.—(W. L. D.)

## OBITUARY.

## R. W. C. SHELFORD.

ZOOLOGISTS have heard with great regret of the death, on June 22nd, of Robert Walter Campbell Shelford, the leading authority on the *Blattidæ*, and a naturalist of very broad interests.

Shelford was born at Singapore on Aug. 3rd, 1872—the son of a merchant who was a member of the Legislative Council, and made C.M.G. in recognition of his many public services. There is no evidence that Shelford's taste for natural history was inherited, and it did not appear in any other member of the family. Prevented from taking a part in the games and ordinary outdoor pursuits of a boy and a young man, his active mind turned to observation, and he became a naturalist. He was educated privately until he entered King's College, London, and later Emmanuel College, Cambridge. At Cambridge, where he took a second in both parts of the Natural Science Tripos, he received a solid foundation for the excellent zoological work of his mature years.

After taking his degree he became, in 1895, a Demonstrator in Biology, under Professor L. C. Miall, at the Yorkshire College, Leeds. In 1897 he went to Borneo as Curator of the Sarawak Museum, established by Rajah Brooke at Kuching. During his seven years' tenure of this position he availed himself to the full of the many opportunities for studying the animal life of the tropics, and of making observations in anthropology, a subject which always strongly attracted him. His fruitful labours in the increase and arrangement of the Sarawak Museum naturally led him to take a wide survey of the animal kingdom, and he soon began the study of Mimicry, which unites under one point of view the insects of many diverse groups and their vertebrate enemies. He found Borneo a very rich and imperfectly explored field for the study of this subject, and before long he entered into a regular correspondence with me, sending large consignments of mimetic insects for investigation and determination. The result of this work was the appearance of his important paper in the 'Proceedings' of the Zoological Society for 1902 (p. 230). This interesting monograph is illustrated by five coloured plates showing Bornean mimetic insects of the most varied groups. The outcome of the correspondence was his desire to work in the Hope Department when his seven years in Borneo came to an end in 1905. Towards the close of this period he wrote to me saying that if it was

impossible to provide a salary he must really come without one. Fortunately, at this moment, Magdalen College began to place an annual grant at the disposal of the University for the provision of extra assistance in the departments, and it thus became possible to appoint an assistant-curatorship, with a small income, augmented later on from the Common University Fund. Shelford accepted this position, and entered into residence at Oxford in the autumn term of 1905. After leaving Kuching, and before returning home by way of Japan, Vancouver, and the United States, he spent several months travelling in the Malay Archipelago. On June 25th, 1908, he married Audrey Gurney, daughter of the Rev. Alfred Richardson, vicar of Combe Down, Bath.

Until his long illness, which began in April, 1909, Shelford's work in Oxford was continued uninterruptedly and with the greatest energy. He at once undertook the study of the large collection of Orthoptera in the Hope Department, beginning with the *Blattidae*, which he brought into a highly efficient state. In the course of his work upon this group he determined and described, in a long series of valuable memoirs, the new species in all the great Continental collections, with the result that the Hope Department now contains by far the finest collection of *Blattidae* in the world, and includes types or co-types of a large proportion of all the known species. He had also begun to work at the other Orthopterous groups, especially the *Phasmidae* and *Mantidae*, and, through his influence, the *Tettiginae* (*Acridiidae*) were worked out by Dr. J. L. Hancock, of Chicago, and *Gryllacris* by Dr. Achille Griffini, of Genoa. He was an indefatigable worker, as will be realized by any naturalist who sees what the Oxford collection of *Blattidae* became after only four years' work. A too brief respite in the course of his illness enabled him to return for a time and carry on the old work, and, up to the end of 1911, he was still able to help the Department in many ways, and also to begin a Natural History of Borneo. It is very much to be hoped that this work, though incomplete, may be published at no distant date. It is sure to be full of observations of the greatest interest to naturalists of all kinds.

When three years old Shelford contracted tubercular disease of the hip-joint, as a result of a fall downstairs, and was condemned to spend many years on his back. A severe operation was performed when he was ten, and at thirteen he was able to leave home and reside with a tutor. He was left with a stiff joint, and from time to time suffered greatly from sciatica. During his residence in Sarawak

a fall from a rickshaw produced an abscess, from which he entirely recovered. During four years in Oxford his leg seemed to give him no trouble except for attacks of sciatica, to which he never gave in, and, in spite of his lameness, he used to find great enjoyment in playing golf. An accidental slip led to the recrudescence of the old disease, and to the terrible suffering of his last illness.

Of all the memoirs which he wrote, Shelford was, I think, most interested in that "On Mimicry amongst the *Blattidæ*"\*—a subject upon which he had reflected and had been accumulating material for some years. It is a pathetic circumstance that the publication of the paper was nearly coincident with its author's death. I shall ever retain grateful memories of pleasant years spent in hard work and constant friendly intercourse, while his efficient control of the Museum and bright, attractive, many-sided personality will be long remembered in Sarawak.

EDWARD B. POULTON.

Hope Department, Oxford University Museum.

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JOHN GERRARD KEULEMANS.

THIS accomplished and unsurpassed ornithological artist passed away on March 29th last, at the age of sixty-nine years, having been born on June 8th, 1842, at Rotterdam.

To the late Dr. Bowdler Sharpe, Keulemans may be said to have owed his introduction to this country, and the family of our deceased ornithologist still possess Keulemans' first drawing, which represents two Tits. He illustrated Sharpe's Monograph of the Kingfishers, and considered no trouble too great in obtaining particular pigments to portray the tints of these beautiful birds. Some of the best judges consider that his finest work was executed in 1874 and onwards in the first volumes of the 'Catalogue of the Birds in the British Museum,' and as an instance reference may be made to the Plates of Owls in volume ii. of that publication. It would be difficult to imagine any finer work of the kind, combining perfection both in drawing and coloration. In later years his pencil somewhat lost its cunning, and he ultimately became to some degree colour-blind. To great energy and capacity for work he seemed to possess an intuitive knowledge as to the natural pose of a bird whose skin was only in his hands, and he was fond of birds as well as being a good ornithologist. He was always helpful to any beginner.

W. L. D.

\* Proc. Zoc. Soc. Lond. 1912, p. 358.

## EDWARD ARTHUR FITCH.

WE greatly regret to learn that Mr. E. A. Fitch passed away at his residence, Brick House, Maldon, on June 28th, after a comparatively brief illness. He was the son of Mr. Edward Fitch, J.P., of Bayswater, and was born at Chelsea on Feb. 23rd, 1854. He was educated at Great Ealing School and King's Cross School, London, and while in his teens passed the Senior Oxford Local Examination with honours. He arrived in Essex in 1871, and began farming, and since 1874, a period of thirty-eight years, he resided at Brick House, Maldon.

Mr. Fitch had strong natural history proclivities, and was early known as an entomologist. We first became acquainted at meetings of the Entomological Society nearly forty years ago, and he succeeded the present writer as Secretary of that Society in 1881, holding the office till 1885. He was a Fellow of the Linnean Society, but we believe the pressure of other engagements terminated his fellowship. As Chairman of the Essex Naturalists' Field Club he did good work, and as Chairman of the Kent and Essex Sea Fisheries Committee for a number of years he was most assiduous in his duties, presiding there as recently as June 10th last. He was also on the Council, and was Local Secretary, of the Essex Archaeological Society. His contributions to the topography of Essex are well known; he was the author of 'Maldon and the River Blackwater,' and for years was joint editor of the 'Essex Review.' He was also a member of the old Chelmsford Odde Volumes, a Society well known to the few. His contributions to 'The Zoologist' were always valued. As a farmer, he was a practical agriculturist, and in 1902 headed a party of fifty Essex farmers who went over to Hungary to study first-hand the methods of Hungarian farming.

But it was in public work—a record of which recently appeared in the 'Essex Weekly News'—that his phenomenal activity found the inspiration of his life. He was six times Mayor of Maldon, and seems to have been connected with every public body of his district, from the aldermanic bench to wardenship of his parish church. In politics he was a pillar of the local Liberalism. Without reproach he could have said: "Homo sum, et nihil humani a me alienum puto."

W. L. D.

## NOTICES OF NEW BOOKS.

*Studies in Bird Migration.* By WILLIAM EAGLE CLARKE. 2 vols. London : Gurney & Jackson. Edinburgh : Oliver & Boyd.

MR. EAGLE CLARKE is pre-eminently qualified to write on this subject. In 1883 he was elected a member of the British Association Committee on the Migration of Birds as observed on the British and Irish coasts. He was afterwards entrusted with the preparation of the Reports, which revealed to him "that, vast though the data were, much desirable information was still lacking." This led to his special investigations, including a residence of forty-seven weeks in lighthouses and in a lightship, and fourteen weeks spent on the islands of St. Kilda and Ushant. Such, indeed, are no slight credentials, and ornithologists may well consult these volumes with confidence and pleasure.

The author is convinced that the phrase used by the late Prof. Newton, "inherited but unconscious experience," explains the migratory endowment of birds, especially when the journeys are undertaken during the hours of darkness. "The Curlew Sandpiper is perhaps the greatest of all feathered voyagers. This species has its summer haunts in Western Siberia, where it nests on the tundras fringing the Arctic Ocean; yet its winter range extends to Cape Colony, Madagascar, Patagonia, Tasmania, and the Malay Archipelago. To reach these far-off cold-weather retreats, it crosses the lofty Himalayas; traverses the course of the great rivers of Northern Asia, and of the Volga, Rhone, and Nile, and skirts the coasts of Norway, Britain, Western Europe and Africa, and China. Thus, during each year, certain Curlew Sandpipers perform journeys equal to a voyage round the world!" Such statements as these inspire a profound interest, and constitute the knowledge that gives a real meaning to that term so often used, "the romance of animal life."

There is considerable difficulty in defining the exact position of some of our avian visitors, and the movements of these afford another example of the danger of too rigid definitions in bionomical zoology. Thus we read of the Starling: "In the

British Isles it is a resident, a local migrant, a summer visitor, a winter visitor, and a bird of passage." The chapter on the migration of *Sturnus vulgaris* sufficiently supports and supplements this conclusion.

This publication is so full of information and observations that an adequate review would end in almost piratical excerpts. This, of course, is a method neither desired by author nor publisher, nor does it commend itself to the writer of this notice. But this we may say—these volumes are *necessary* to any student of bird migration.

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*The Flight of Birds.* By F. W. HEADLEY, M.B.O.U. Witherby & Co.

THE time had arrived for a new and handy book on the flight of birds. We ourselves had almost lost touch with the subject since 1873, when we acquired and read Pettigrew's 'Animal Locomotion,' one of the "International Scientific Series." The subject is one of a reminiscent nature. When we read Mr. Headley's account of Isaac Newton's experiments with glass globes of equal size but unequal weights which he let fall from the dome of St. Paul's, and by which he established his law (not absolutely accurate) that the resistance of the air increases as the square of the velocity, we may remember Galileo's somewhat similar experiments from the summit of the leaning tower of Pisa, by which he controverted Aristotle's conclusion that the velocity of a falling body is proportional to its weight.

Apart from animal physics, which is treated with considerable amplitude, Mr. Headley's volume contains ornithological information of the greatest interest. He considers that there is good reason to believe that birds while migrating attain far greater velocity than they do in their ordinary flights. He gives an instance:—"The American Golden Plovers breed in Arctic regions from Alaska to Greenland, above the limits of forest growth, and when autumn comes they pass over Nova Scotia, strike boldly out to sea, and, generally leaving the Bermudas well to the west, sail on over the ocean till they reach the West Indies. It is difficult to believe that these are merely stray birds that have been blown out of their course and are sailing on

to death. One witness after another declares that he has seen flocks of them flying southward several hundred miles to the east of the Bermudas, on which islands they alight only if the weather is unfavourable. Flying south from the Bermudas, or somewhere east of them, they must cover some 1700 miles before they land on one of the West India islands. Either they fly at an almost incredible pace or they remain upon the wing an almost incredible time."

The index is open to printer's correction; as an instance, "Pettigrew" is referred to p. 119 instead of p. 19.

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*A Hand-List of British Birds, with an Account of the Distribution of each Species in the British Isles and Abroad.* By ERNST HARTERT, F. C. R. JOURDAIN, N. F. TICEHURST, and H. F. WITHERBY. Witherby & Co.

THIS volume has a double mission; first, its distributional information, and secondly (though perhaps chiefly), its proposed revision in nomenclature. Its distributional element is excellent and trustworthy; its nomenclatorial revision will provoke the greatest attention. That there should be uniformity in nomenclature is admitted on all sides; its revision has been attempted in most orders, especially in the Insecta. But has the last word been said on the subject? That the first or oldest name should be used will be agreed by all naturalists. The use of trinomials has yet to be generally accepted. However, all will be grateful for everything being said, that can be said, in favour of a method which many living zoologists will not follow. These great changes can only win their way in time, that is the universal rule, and although many will follow this lead now, there are as many who will simply be appalled by the proposition, and will remain true to the nomenclature used in our classical text-books. Fortunately, however important and necessary a uniform nomenclature is in faunistic writings, the subject is still only an adjunct to ornithology, and revised names, especially trinomial ones, however they may be desired, will only gain general recognition as they become more universally used in the nomenclature of the future. The old order must first pass away, giving place to the new, and many will not desire this change to be hastened.

## EDITORIAL GLEANINGS.

**A NEW NATURAL HISTORY MUSEUM.**—A general meeting of the East Africa and Uganda Natural History Society was held on May 6th, at the Society's Museum, Game Warden's Office, Nairobi, the Hon. Mr. C. W. Hobley, C.M.G., being in the chair.

In the course of his address, the chairman said:—"I can confidently state that, properly run and well supported, this society should prove one of the most valuable educational institutions this country possesses, and, if we justify ourselves, I hope the day is not far distant when we may look forward to a small amount of Government assistance in the shape of a grant. I further believe that I am not too optimistic to hope that this small museum will one day develop into a big State Museum, with a skilled director in charge and possibly managed by the society. Even a small Protectorate like Zanzibar has a properly organized museum, and it seems absurd that a rapidly developing country like this should not have a similar institution properly equipped. Libraries and museums, nowadays, are indispensable adjuncts to civilization, and as this is the capital and the centre of the life of the country, its site must undoubtedly be here. We have one of the most marvellous fields for research and collection in the world at our very door. This country may not be so rich in insect life as, say, South America; it may not be so rich in reptile and bird-life as, say, India, but taking it all round, it has one of the most wonderful fauna and flora of any country, and it will be a disgrace to the country if we cannot make a representative central collection of it in Nairobi."—('African World,' June 15th, 1912.)

